006522

State of California

The Resources Agency

MEMORANDUM

To: Project Coordinator
Resources Agency

Date: November 16, 1998

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P.O. Box 944246
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From: **Department of Conservation**
Office of Governmental and Environmental Relations

Subject: Headwaters Acquisition/SYP/HCP, Humboldt County **SCH # 97012027**

The Department of Conservation's (Department) Division of Mines and Geology (DMG) has reviewed the following sections of the above referenced document: Section 3.5, Geology and Mineral Resources; Section 3.6, Soils and Geomorphology; and, Appendix E, 3-Year (Interim) and 47-Year (Default) Aquatic Strategy and Mitigation for Timber Harvest and Roads. Comments regarding geology, mineral resources, landslides and mass wasting, slope stability, and erosion control, were provided by Robert Hill of DMG's Mineral Resource Development Project, Thomas E. Spittler of DMG's Timber Harvesting Plan (THP) Review Project, John Schlosser of DMG's Natural Resources Conservation and Development Program, and Trinda L. Bedrossian, DMG Supervising Geologist over these projects and programs. Previous DMG comments on this project were provided to the Department of Forestry and Fire Protection in response to: Pacific Lumber Company's (PalCo) August 25, 1997 Draft Sustained Yield Plan/Habitat Conservation Plan (SYP/HCP) (October 10, 1997); and, the Administrative Draft Headwaters EIS/EIR (July 23, 1998).

GENERAL

1. The maps in the DEIR/EIS, (e.g., Figure S-1 on Page S-4, Figures S-2a through S-2d on Pages S-9 and S-10, Figures 2.5-1a through 2.5-1d on Pages 2-10 and 2-11, Figure 3.4-2 on Page 3.4-5, and Figure 3.6-3 on Page 3.6-7) are very limited in their usefulness; they provide only a general location of the various geographic units discussed in the DEIR/EIS. It is therefore difficult to correlate the location of the boundaries of these units between the maps in the DEIR/EIS, and pertinent reference maps (such as U.S. Geological Survey 7.5-minute topographic quadrangles, published geology maps, and even road maps). It would be very helpful if, in addition to the general maps contained in the DEIR/EIS, the document included larger scale maps with more clearly recognizable cultural and topographic features.

DMG-1

2. On all the maps, Bull Creek is mislabeled as "Ball Creek" (see Township 2 S, Range 1 E on all maps for location of mislabeled creek). COM-2

3. Page 3.4-9, last paragraph: The text reports that the Mattole River has two forks and refers to Figure 3.4-1. However, Figure 3.4-1 is "Climate Data for Eureka" (Page 3.4-2). The reference should be corrected. COM-3

4. Page 3.4-15, paragraph 4: Jordan Creek and Stitz Creek watersheds are mentioned as being cumulatively impacted. Neither of these watersheds is identified on any map. They should be identified on the maps. COM-4

5. Page 3.4-25, last paragraph: The references used to support the paragraph's conclusions include a publication by Cafferata and Spittler, 1998. However, this publication is not included in the references listed in Chapter Four "Literature Cited." This reference should be added to the list of "Literature Cited." COM-5

6. An assessment should be made regarding the use of this DEIR/EIS for the evaluation of slope stability for future THPs from the project area. On Page 3.5-1, paragraph 2, the DEIR/EIS states that "[the DEIR/EIS] is not a technical geologic report, nor does it substitute for the site-specific geology review required as part of the THP process, among other regulatory requirements." On Page 1-17, paragraph 3, the DEIR/EIS states that "This EIS/EIR would be referenced in THPs for its analysis of the environmental effects. Each THP would be evaluated in the light of the analysis in the SYP and EIS/EIR, and the protective measures in the THP would be checked against the mitigation identified in the SYP and EIS/EIR. Any environmental effects of a THP that were not covered in the SYP and EIS/EIR would have to be addressed in that THP." The report, however, should be explicit that every THP submitted on property covered by this DEIR/EIS will need specific mitigation for the potential slope instability problems identified by the DEIR/EIS. Necessary mitigation measures to address slope stability concerns will have to be evaluated on the information presented in each individual THP. COM-6

MINERAL RESOURCES (Section 3.5)

1. Pages 3.5-7 and 3.5-8: DMG suggests the following wording change (insert existing text as indicated by "..."): COM-7

> The mineral resources of PalCo and Elk River Timber Company lands that would ... to create the Headwaters Reserve include sand and gravel, and reserves of natural gas from the Tompkins Hill gas field. The sand and gravel are ... road construction.

2. General comments regarding "potential for mineral resources":

A. The distinction between the potential for the presence of mineral resources and the potential for future development of known and potential mineral resources should be made clear. COM-8

B. Conclusions about presence, or likelihood for future development of mineral resources should be stated in terms consistent with available information. Not much can be said based primarily on a literature-based review if the available literature does not adequately cover these issues. One might argue that, although it does not appear (from available literature) that there is potential for the presence, or future development, of economically significant metallic mineral resources, this cannot be ruled out based on the literature cited. In fact, industrial minerals, such as sand and gravel, are being developed in the area and have potential for future development. COM-9

C. Also, the presence of the same geologic formations in areas other than the area from which a mineral commodity is being mined (especially in the case of industrial minerals) is no guarantee that the same commodity in other areas can be mined economically or will meet specifications. In the case of aggregate, transport distance also has a significant impact on cost (availability) to the consumer. These external factors that impinge on the commercial value of a mineral resource should be discussed in the DEIR/EIS. COM-10

D. The DEIR/EIS should identify who is performing the mineral rights evaluation, and when the results will be available. COM-11

E. The Department suggests that the DEIR/DEIS include a legal review of its reference to the government's "intent to control surface use." COM-12

3. Page 3.5-12: Need for clarification:

A. Taken together, the following statements are unclear: COM-13

> "The actual mineral potential would not be different from what it is currently. No new mining activity of any kind is part of any alternative."

Is the intent that the basis for the first statement is the second statement? If so, mineral potential (potential for presence of mineral resources) is not predicated on presence or absence of mining.

B. Is there a difference between plans for mineral management activities for Alternatives 2, 3, and 4? If not, then potential mineral-related activities would be prevented in all three. This needs clarification. COM-14

GEOLOGY (Section 3.5)

In general, Section 3.5 of the DEIR/EIS contains fundamental misconceptions regarding the geologic units of the project area, and about geologic processes affecting southern Humboldt County generally. The references used are not adequate for describing geologic conditions. Also, many of the points addressed are over-simplistic, confusing, and/or inaccurate, and have little bearing on geologic concerns in the area. For example:

1. Page 3.5-1, paragraph 1: Development of soils and a site's susceptibility to mass wasting in the area are much more complex than implied. As indicated in the DEIR/EIS, rock type and mineralogy do affect soil mineralogy and chemistry. However, rainfall patterns, groundwater and vegetation are also key factors in assessing slope stability. These factors should also be addressed. COM-15

2. Figure 3.5-1 (Geologic Materials Map) on Page 3.5-3: The sources of information used in the compilation of this map should be clearly cited. COM-16

3. Page 3.5-1, paragraphs 4 and 5, and Page 3.5-2, paragraph 1, Section 3.5.1.1 (Geology and Physiography): Geology in the area is complex, in part, because of the triple junction mentioned in the DEIR/EIS. While descriptions of the geology in this introductory section may be generally correct, more complete references and/or reasons for the structural variations that occur in the site's vicinity are needed. In addition, the relationship between uplift rates, downcutting along channels, and material strengths, is important in determining erosion rates and mechanisms, and should be addressed in this section. COM-17

4. Page 3.5-2, paragraph 1: The DEIR/EIS states that the area south and west of the Eel River "has experienced rapid uplift from the continental shelf and has not been subjected to compressional deformation." Perhaps this is true in a relative sense, since it generally has not been subjected to the amount of deformation, as has the area north of the Eel River. Nevertheless, at least on a local scale, there has been considerable compressive deformation in the area southwest of the Eel River. The DEIR/EIS itself notes compressive deformation in the area north of Petrolia (see Page 3.5-5, paragraph 3). The statement regarding deformation of the area southwest of the Eel River should be elaborated and clarified. COM-18

5. Pages 3.5-2 and 3.5-5 (Geology and Physiography): The description of the geology on these pages is often oversimplified, irrelevant, or not consistent with current understanding. For example: COM-19

   A. Page 3.5-2, paragraphs 2: The sedimentary rocks that overlie the Franciscan complex are not all fine grained.

   B. Page 3.5-2, paragraph 2, and Page 3.5-5, paragraph 4: An important component of Franciscan melange, that defines its engineering properties, and is important COM-20

in understanding its erosion and slope stability characteristics, has been omitted. The melange consists of blocks of various rock types enveloped in a pervasively sheared matrix of fine-grained mudstone/shale. This information should be included in the final EIR/EIS. Conversely, the DEIR/EIS includes some geologic information that adds very little to understanding the relationship of local geology to erosion and slope stability processes, namely that the downwarping of the Eel River basin is an anomaly in a region that is generally being uplifted. This information could have been omitted as not pertinent to the geology's engineering properties. COM-20 con.

C. Page 3.5-2, paragraphs 4: It is doubtful that a depositional contact exists between Franciscan rocks and the Yager Formation. Bob McLaughlin, U.S. Geological Survey (USGS) considers the Yager as transitional within the Franciscan Complex, while Dorothy Merrits has published data indicating that the age of the Coastal Belt and Yager formations may overlap. This uncertainty should be noted as it pertains to land stability impacts. COM-21

D. Page 3.5-2, paragraphs 5: The personal communication by Bedrossian, cited here, apparently continues to be misunderstood with respect to soil erodibility and slope stability of the Wildcat Group of geologic formations. The Wildcat Group contains a number of different formations (for instance the Rio Dell and the Scotia Bluffs formations). Each formation contains various sequences of rock types (i.e., interlayered sandstone, siltstone, mudstone), with the result that each formation has different engineering properties that will in turn affect soil erosion and slope stability differently. COM-22

E. Page 3.5-5, paragraphs 2,3, and 4: Apparently these paragraphs are intended to correct the deficiencies pointed out in our comment #3, above. Paragraphs 4 and 5 on Page 3.5-1, and paragraph 1 on Page 3.5-2, should be replaced or combined with the information presented on Page 3.5-5, to avoid duplication and contradiction in the DEIR/EIS.

F. Structural features and faulting in the area are complex. Where faults contribute to slope stability, e.g., north of Petrolia where thrust faults "produce high relief terrain," they should be mapped, and the associated slope stability concerns addressed in the report. COM-23

6. Page 3.5-5, paragraph 6 (Geologic Hazards): The California Department of Mines and Geology should be changed to the California Division of Mines and Geology. COM-24

7. Pages 3.5-5, and 3.5-6 (Geologic Hazards): The Department has concerns about the validity of the discussion pertaining to Table 3.5-1. While use of DMG maps may be appropriate to identify areas of potential slope stability problems, there do not appear to be any statistics to support the conclusions drawn from Table 3.5-1 with respect to mass wasting processes and geologic formations. DMG notes that because COM-25

mapping is not a precise science, there may be errors on the maps; e.g., in the field, blocks of Coastal Belt graywacke sandstone, Yager Formation and parts of the Wildcat Group often resemble each other. In addition, types and locations of failure will be dependent upon other factors such as geologic structure, slope aspect, slope angle, surface and ground water flow, and other topographic features (e.g., inner gorge areas) in combination with the geologic units present. Therefore, statistical assumptions based on geology in one area cannot necessarily be applied to areas that have not been previously mapped. COM-25 CON.

8. Table 3.5-1, Page 3.5-6: The Central Belt Franciscan-Broken Formation is listed twice on the Table, an apparent error. COM-26

9. The level of description of geologic units should be at least as comprehensive as those for the individual soils provided on Page 3.6-2 (Soil Types of the Project Area). DMG suggests that an overview of the geology include discussions on lithologic characteristics and basic differences in engineering properties of each unit, how data on accompanying maps were compiled, and any limitations of the data used. COM-27

SOILS AND GEOMORPHOLOGY (Section 3.6)

With but few exceptions, the various components of this section appear to have been compiled using facts from various publications without having an understanding of the geology, geomorphology, and mass wasting processes in the project area, particularly as the information applies to timber harvesting and road construction. While some sections may be useful to the decision-making process, the information presented contains errors, and is often confusing and irrelevant in providing a good understanding of the processes involved. We are therefore concerned with the validity of many of the conclusions reached in this section. Because of its numerous errors and misconceptions, it is difficult to do a detailed review of this section or an assessment of the conclusions reached. The Department nevertheless offers the following suggestions for reworking this section:

1. Figure 3.6-3 (Geomorphic Features Map), Page 3.6-7: This map <u>appears</u> to accurately reflect landslides and geomorphic features depicted on maps published by DMG for this area. However, the small scale of the Geomorphic Features Map, and the scarcity of clear cultural and topographic features makes correlation of this map with the DMG maps, or any other map, very difficult. Hydrologic Unit (HU) boundaries, which are referred to extensively in this section, are difficult to find in the southern half of this map. COM-28

2. Page 3.6-1 (Geomorphic Setting): This section has greatly simplified a very complex setting, which may help a decision-maker to get a quick, general understanding of a complex situation. Oversimplification of something so complex, however, can lead to errors in the understanding of important aspects of the geomorphic setting. For example, the simplified description of the Franciscan complex leaves the impression that weak, landslide-prone Franciscan rocks produce hummocky oak and grass COM-29

woodlands, while heavily forested areas are found only on the more resistant Franciscan rocks. To the contrary, substantial areas of forested lands are underlain by weak Franciscan rocks and naturally landslide-prone terrain. The Yager Formation is stated as forming "broadly convex slopes, which are the result of debris slides and debris flows." More accurately, the broad convex slopes underlain by the Yager Formation are subject to debris slides and debris flows. There are a number of other factors, in addition to the occurrence of debris slides, contributing to the convex shape of the slopes. COM-29 con.

3. Figure 3.6-2 (Landslide Types in Northern California), Page 3.6-6: This figure is indicated as taken from T. L. Bedrossian, 1983. This reference should be added to the "Literature Cited" section of this chapter. Also, the information in figure 3.6-2 appears to have come from a table included on many of the maps produced for the series of "Watershed Maps," published by DMG in the 1980's. If so, this source should be attributed. Finally, the last landslide in the figure (Debris Slide Slope/Amphitheater) has an error; the first sentence of the description appears to have been mistakenly taken from the proceeding landslide description (Inner Gorge). The first sentence of the description for the Debris Slide Slope/Amphitheater should read "A geomorphic feature in which slopes have been sculpted by numerous debris slide events." (The second sentence is correct.) COM-30

4. Page 3.6-3 through Page 3.6-13, Section 3.6.1.3 (Geomorphology): The mass wasting component was not addressed in this section other than stating that a certain percentage of the watershed is associated with one type or another of a geomorphic process. This is not useful. The discussion should be based on the specific process and its potential impact on the identified resources at risk. COM-30

5. Page 3.6-15, paragraph 4, end of the paragraph: The paragraph states that seven HUs have road densities of over 5 miles/sq. mile, and only two have densities over 2 miles/sq. mile. We believe that this last density figure should read "under" 2 miles/sq. mile. COM-31

6. Page 3.6-15, last paragraph: DMG notes that road rock in the area is generally of low abrasion resistance and may break down, which could be another reason that road surfacing is generally lacking in the area. COM-32

7. Page 3.6-17, paragraph 3 (Impact Mechanisms): At the end of the paragraph the text refers to Section 3.6.5. This reference is in error; the reference should be to Section 3.6.6. Likewise, paragraph 4 incorrectly refers to Figure 3.6-1, instead of Figure 3.6-2. COM-33

8. Page 3.6-17 to 3.6-20, Section 3.6.2.1 (Mass Wasting): This section contains many errors, oversimplifications, and misunderstandings with respect to landslide types and processes. The descriptions are disjointed, and again there are many numbers from published studies sprinkled into the text, most of which are from outside the COM-34

EIR area, and therefore of dubious relevance. The discussion of deep-seated landslides concentrates almost exclusively on earthflows, and provides very little information about other types of deep-seated slides, which may occur in the project area. Finally, the discussion of shallow mass wasting contains many errors and misunderstandings of landslide processes, and should be reworked. COM-34 con.

9. Page 3.6-19, paragraph 2 and 3: There are no references for "Varnes, 1978", or for "Bedrossian, 1983" in Chapter Four's Literature Cited section. COM-35

10. Page 3.6-21 and 3.6-22 (Hillslope Erosion): It is questionable how much of the information presented in this section is applicable to current timber harvest activities occurring on the project site. Many of the cited studies were done in areas where tractor and cable harvesting of old growth redwood was conducted prior to application of the Forest Practice Rules. Some of the studies were done in parts of Northern California, which have somewhat different geology. Other studies cited were conducted in Washington State. There was no demonstration of how these studies are applicable to the project site. COM-36

    (It is worthwhile pointing out that the DEIR/EIS states here that because high sediment loads can result from disturbance of a single sensitive area, THPs must address sensitive areas on a site-specific basis. This is consistent with our earlier comment that THPs need such site-specific treatment (see item 6, page 3 of this memorandum)).

11. Page 3.6-22, paragraph 2: What was the source of sediment in the Kelsey study cited? Are there any updated references with more recent information? Does information from this study relate to the project area? COM-37

12. Page 3.6-22, paragraph 5 (Roads): The cited references, "California Division of Soil Conservation, 1971", and "California Department of Forestry, 1972", should be added to Chapter Four 's Literature Cited section. COM-38

13. Page 3.6-23, paragraph 2 (Roads): Failure of the fillslope can just as likely be caused by over-steepening of the slope and increasing the weight (driving force) on the slope below the road prism, as by increasing the water content of the fill slope. COM-39

14. Page 3.6-23, paragraph 4 (Roads): The statement that "the most heavily used road, over time, will generate the most sediment," is not accurate. There are a number of other factors, besides increase in traffic that can affect how much sediment is delivered from a given section of road. These factors include, among others: the condition of road surfacing; timing of when the road is used in relation to rainfall and road prism soil moisture content; location of road relative to watercourses; construction methods such as outsloping versus insloping; and, steepness of the slope on which the road is located. COM-40

15. Page 3.6-23, paragraph 6 (Roads). There are a number of important road construction and maintenance techniques beside those mentioned which will help reduce sediment delivery from roads. One of the most effective is outsloping and eliminating the inside ditch. Another is placing rolling dips on either side of stream crossings, to keep flow from being diverted down the roadway in the event of culvert failure. There are numerous other site-specific mitigation measures that can be applied. COM-41

16. Page 3.6-30 to 3.6-37 (Timber Harvest-related Mass Wasting): Conclusions of this section are not supported in the DEIR/EIS. For example:

A. Page 3.6-30, paragraph 2: A discussion of impacts of harvesting on slope stability should elaborate on the differences between vegetation types (i.e., Redwood and Douglas Fir) in the area. Where revegetation is poor, the effects of harvesting may be long lasting. Many, if not more, landslides associated with timber harvesting are associated with road (cuts and fills) and runoff diversion (concentration of runoff). Also, rotational landslides and earthflows are more common than shown on maps for the DEIR/EIS area. These are often not easy to observe on air photos, however, on-site impacts indicate that deep-seated landslides are an important component of mass wasting in Humboldt County. Cuts, fills, and diversions associated with timber harvesting do affect the stability of deep slides. In addition, there are many site-specific measures that can be applied to reduce impacts on harvested slopes. COM-42

B. Page 3.6-30, paragraph 4 (Threshold of Significance): The explanation of how the Threshold of Significance was determined, and by whom, is lacking. The explanation given was, "The best available information from the literature, Coarse Sediment, Fine Sediment, and Soil Productivity along with professional judgement, was used for the evaluation." Better documentation of the literature relied upon, and the step-wise methodology and criteria used, is needed in the DEIR/EIS. Another environmental professional should be provided with enough information about the methodology and assumptions that they could repeat the analysis and arrive at similar results. Otherwise, DMG is doubtful of the value and significance of these thresholds. COM-43

C. Page 3.6-33, bottom of paragraph 2: The DEIR/EIS states that "A report by DMG contains prescriptions for preventing increased landslide activity (CDMG, 1983)." DMG notes that descriptions of possible management options for various landslide types in Bedrossian (1983), and in DMG Note 50, provide general guidelines only, and that site-specific mitigation measures would be necessary to reduce landslide potential. COM-44

D. Page 3.6-33, paragraph 3: The DEIR/EIS states "that landslides originating from logged hillslopes approximately double the number of landslide sites (Pacific Watershed Associates, unpublished report, 1998)." The way the statement is COM-45

written it is unclear what is meant. This should be clarified. Also it is premature to assume that conclusions reached in the report by Pacific Watershed Associates for any given watershed would be applicable to the entire PalCo ownership. COM-45 con.

E. Page 3.6-34, paragraph 4, bottom of the page: The approach used by the Washington Department of Natural Resources, especially extrapolations, may not be appropriate for the DEIR/EIS area given the underlying geologic conditions. DMG knows of no peer review, or test, of the applicability of the approach in California. COM-46

F. Page 3.6-36, paragraph 5, top of page: The report states that the potential effect of landsliding is considered to be less than significant with respect to people and property. The report does not address the potential effect on environmental conditions such as soil productivity, water quality and fish habitat, all of which are pertinent to forest practices. COM-47

17. Page 3.6-37 to 3.6-43 (Road-related Mass Wasting): Again, this section does not address road location, drainage or future planning of roads as related to slope stability, nor does it document conclusions reached. For example: COM-48

A. Page 3.6-38 (Threshold of Significance): The Threshold of Significance evaluation was not clearly described. Not enough detail was provided on how the evaluation was performed to enable other parties to repeat it for similar applications. Based on the description, the evaluation seems too subjective to have much value for this analysis. COM-49

B. Page 3.6-39, paragraph 3: This paragraph states that no formal inventory of road conditions has been conducted. This will need to be done in order to assess the impacts of this project. The final EIR/EIS will need to address this. COM-50

C. Page 3.6-40, paragraph 2: Road Guidelines specify that full bench road construction be used on slopes steeper than 60 percent. The guidelines should specify where spoils will be located and how they will be treated. COM-51

18. Page 3.6-60, Section 3.6.4.6 (Mitigation): The statement that effects "related to timber harvest- and road-related mass wasting, hillslope and road erosion, and soil productivity, are less than significant" is not adequately documented. In fact, many sections of the DEIR/EIS indicate that there is not enough information available to draw these conclusions. COM-52

APPENDIX E

1. This section mentions the use of geologic, engineering and geomorphic evaluations in several places (pp. 1, 10, 12 of Interim Strategy, and p. 9 of Interagency Federal- COM-53

State Strategy). There is no indication, however, that agency review of these evaluations by National Marine Fisheries Services, Department of Fish and Game, U.S. Fish and Wildlife, Regional Water Quality Control Boards, and the Environmental Protection Agency (the only agencies mentioned as reviewers) will be conducted by appropriately qualified personnel. DMG notes that, in California, geologic information prepared and reviewed for public documents on state and private lands must be signed by a California Registered Geologist or Certified Engineering Geologist.

COM-53 con.

2. The Interagency Federal-State Strategy mentions certain tasks to be performed by a Mass Wasting Team (pp. 4 and 6). However there are no references in these pages to the makeup or the functions of this Team. On page 10, under Hillslope Management, Mass Wasting, the DEIR/EIS states that "A team of a professional geologist, forester and at least 1 agency...biologist determines if alternative prescriptions are appropriate and what the prescriptions will entail." If this is the Mass Wasting Team referred to on pages 4 and 6, it should be so stated in the document. Also, the professional geologist mentioned on page 10, should be a Registered Geologist or a Certified Engineering Geologist.

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3. The definitions of Inner Gorge on p. 12 of the Interagency Federal-State Strategy, and on Attachment #2, are inconsistent. DMG notes that the definition used on p. 12 of the Interagency Federal-State Strategy is the definition that was adopted in the early 1980's by an interagency advisory committee established under Section 208 of the Federal Water Pollution Control Act to provide consistent mapping of geologic features. The advisory committee was composed of geologists from DMG, the State Department of Water Resources, the U.S. Forest Service and private consultants. Definitions and management guidelines for forest practices, including those for inner gorge, were based on geomorphic and technical aspects of the features described. Because they provide clearly recognizable criteria upon which management decisions can be made, these definitions have been used successfully by DMG, CDF, the timber industry and other agencies in the review of THPs, and in recommending mitigation for problem sites. The definition used in Attachment #2 requires a different standard than is used elsewhere in the review of these geomorphic features, the assessment of risk, and the evaluation of appropriate mitigation measures. In some cases, this standard actually provides less protection than is provided under the strictly technical definition established by the 208 advisory committee.

COM-55

CONCLUSIONS

Geologic, mineral resource and slope stability (geomorphic) data contained in the Draft EIS/EIR do not meet the standards of practice generally followed in the preparation of other environmental documents reviewed by DMG. We recommend that: (1) a California Registered Geologist or Certified Engineering Geologist familiar with mineral resources, geology and mass wasting processes affecting southern Humboldt County, be used in the

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revision of Sections 3.5 and 3.6 of the DEIR/EIR; (2) conclusions reached regarding the impacts of each alternative on geologic, mineral resource and slope stability conditions be clearly supported by information in the document; and, (3) consideration be given to DMG's advisory comments relating to Appendix E to ensure consistency with California State law. COM-57 CON.

We appreciate the opportunity to review and comment on this document. Any questions that you may have regarding these comments should be directed to John Schlosser, or myself, at (916) 322-5873 or (916) 445-2673, respectively.

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cc: Trinda Bedrossian
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